Claims

We claim:

1. A method for inhibiting process formation and extension by process-forming cells in culture, said method comprising culturing one or more process-forming cells under conditions that are inhibitory to the formation or extension of cell processes.

2. The method of claim 1, wherein said culturing comprises growing the process-forming cells in culture that contains no cell attachment factors that would promote adhesion of the process-forming cells to a solid substrate.

3. The method of claim 1, wherein said culturing comprises growing the process-forming cells on a solid substrate that has not been treated to promote cell attachment and lacks cell attachment factors that would promote adhesion of the process-forming cells thereto.

4. The method of claim 3, wherein the solid substrate is a culture vessel selected from the group consisting of a Petri dish, flask, bottle, plate, tube, and vial.

5. The method of claim 3, wherein the solid substrate comprises untreated plastic.

6. The method of claim 3, wherein the solid substrate is a microbiological plate.

7. The method of claim 3, wherein there is substantially no attachment of the process-forming cells to the solid substrate.

8. The method of claim 1, wherein said culturing is carried out under low calcium or calcium-free conditions.

9. The method of claim 8, wherein the calcium concentration of the cell culture is 50 μM or less.

10. The method of claim 1, wherein the process-forming cells are selected from the group consisting of glial cells, muscle cells, connective tissue cells, and endothelial cells.

11. The method of claim 1, wherein the process-forming cells comprise neurons.

12. The method of claim 1, wherein the process-forming cells cluster so as to form three-dimensional aggregates.

13. The method of claim 1, wherein said culturing comprises co-culturing two or more types of process-forming cells.

14. The method of claim 1, wherein said culturing comprises co-culturing the process-forming cells with non-process-forming cells.

15. The method of claim 1, wherein said method further comprises removing the process-forming cells from the culture and associating the process-forming cells with a pharmaceutically acceptable carrier.

16. A method for cell therapy comprising administering process-forming cells to a host, wherein the process-forming cells have been cultured under conditions that are inhibitory to the formation or extension of cell processes.

17. The method of claim 16, wherein said administering comprises administering the process-forming cells in the form of three-dimensional aggregates.

18. A cell culture comprising one or more process-forming cells in the absence of cell attachment treatments or cell attachment factors.

19. The cell culture of claim 18, wherein said cell culture is free of calcium or contains a low concentration of calcium.

20. The cell culture of claim 18, wherein said cell culture further comprises a solid substrate supporting the processing-forming cells, wherein there is substantially no attachment of said process-forming cells to said substrate, and wherein said cell culture has a calcium concentration of 100 μM or less.